IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Amended) A method for inspecting an insulating layer deposited or planarized on a substrate in fabrication processes of semiconductor with a library of optical images, the method comprising:

measuring a thickness of the insulating layer;

collecting an optical image of the insulating layer corresponding to a location of the measured thickness data, and transforming the optical image into optical image analog data or optical image digital data;

creating a library by matching the measured thickness data and the optical image data collected on the same location on the substrate; and

identifying defects in the insulating layer based on the library.

2. (Currently Amended) The method as defined by claim 1, wherein the thickness data is data for a particular region or the whole of a ~~the~~ wafer.

3. (Currently Amended) The method as defined by claim 1, wherein the ~~standard~~ data for the optical image is data for a particular region or the whole of a ~~the~~ wafer.

4. (Currently Amended) The method as defined by claim 1, wherein the optical image is stored as an ~~in~~ analog or digital image.

5. (Currently Amended) The method as defined by claim 1, wherein creating the library is such that each optical image for a ~~the~~ region represented by each thickness data is determined and a continuous image library for each thickness is constructed.

6. (Previously Amended) A method for inspecting an insulating layer deposited or planarized on a substrate in fabrication processes of semiconductor with a library of optical images, the method comprising:

measuring a thickness of the insulating layer at a plurality of locations on the substrate;

collecting an optical image of the insulating layer for each of said plurality of locations on the substrate, and storing the optical image transformed into analog data or digital data;

correlating the optical image to the measured thickness of the insulating layer for each of said plurality of locations;

creating a library by matching the optical image to the thickness of the insulating layer for each of said plurality of locations; and

identifying defects in the insulating layer based on the library.

7. (Cancelled).